

REMARKS

This paper is intended as a full and complete response to the Final Office Action dated August 23, 2007.

Claims 4-6 and 29 are currently amended to correct matters of form.

Claim 23 is currently amended to recite more clearly implicit aspects of the claimed subject matter and/or reduce issues for appeal. More particularly, Applicant has amended claim 23 to more clearly recite that “a plurality of apertures” are “formed through a lower portion of the stripping zone.”

Claims 1, 4-6, and 21-33 are currently pending and are in condition for allowance.

Entry of the foregoing amendments and reconsideration of the claims is respectfully requested.

Drawings

Applicant has included the Replacement Sheet page 1/11 and an annotated marked-up version thereof with this Response. Applicant apologizes for the clerical error in not submitting the drawings in the previous response. Applicant believes that no new matter has been added with these amendments.

Claim Objections

The Office Action objected to Claims 4-6 for lack of antecedent basis. Applicant has amended Claims 4-6 as suggested by the Examiner to obviate the objection. Applicant believes that no new matter has been added with these amendments. Withdrawal of the objection is respectfully requested.

The Office Action objected to Claim 29 for lack of clarity in claim language. Applicant has amended Claim 29 as suggested by the Examiner to obviate the objection. Applicant believes that no new matter has been added with these amendments. Withdrawal of the objection is respectfully requested.

Claim Rejections – USC 102

The Office Action rejected Claims 25, 28, 29, and 33 under 35 U.S.C. § 102(b) as being anticipated by *Parker* (U.S. Patent No. 4,692,311; hereafter “*Parker*”). The Office Action states “*Parker* discloses an apparatus for separating particulates from a carrier fluid (see *Parker*, Fig. 2), comprising: (a) an upper section (24) with a first cross-sectional area; (b) a lower section (27, 35) with a second cross-sectional area.” The Office Action also states that *Parker* discloses “the lower section (27, 35) comprises a lower surface having a plurality of apertures formed therethrough (see *Parker*, column 6, lines 1-26).”

Applicant respectfully traverses the rejection on grounds that *Parker* does not teach, show, or suggest the claimed invention. At the very least, *Parker* does not teach, show, or suggest a lower section comprising a lower surface having a plurality of apertures formed therethrough, as recited in claims 25, 29 and those dependent therefrom. Conversely, *Parker* discloses an “annular plenum 33 and a sintered stainless steel ring 34,” not apertures. See, *Parker* at col. 6, ll. 23-24 and Fig. 2. Therefore, *Parker* does not teach, show, or suggest all claim limitations of claims 25, 29 and those dependent therefrom. Withdrawal of the rejection and allowance of the claims is respectfully requested.

Furthermore, *Parker* does not teach, show, or suggest an upper section with a first cross-sectional area and a lower section with a second cross-sectional area as required in claims 25, 29 and those dependent therefrom. Conversely, *Parker* discloses a cyclonic particle stripping unit with a single constant cross-sectional area of the cyclonic (upper) section that is the same as the cross-sectional area of the stripping (lower) section. See, *Parker* at col. 6, ll. 2-9. For at least this reason, withdrawal of the rejection and allowance of the claims is respectfully requested.

Claim Rejections – USC 103

The Office Action rejected Claims 1, 5, 6, 21-24, 26, and 27 under 35 U.S.C. § 103(a) as being unpatentable over *Parker*. Alternatively, the Office Action rejected Claims 1, 5, 6, 21-24, 26, and 27 under 35 U.S.C. § 103(a) over *Parker* in view of *Simpson* (U.S. Patent No. 7,108,138; hereafter “*Simpson*”) and *Dewitz* (U.S. Patent No. 5,869,008; hereafter “*Dewitz*”). The Office Action states, “*Parker* does not disclose wherein the particulate stripping unit comprises a stripping section having a cross sectional area less than a cross sectional area of the cyclone section.” The Office Action then states, “*Simpson* instructs that ‘in order to enhance and aid the interior vortex development, one needs to introduce diffuser air at a cylinder diameter larger than the cyclone outlet diameter.’” The Office Action, therefore, concludes that one “would have been motivated to modify the unit of *Parker* by increasing the cross sectional area of the cyclone section relative to the stripping section (as is known in the art and further evidenced by *Simpson*) in order to ensure rapid development and sustained strength of an interior vortex necessary to separate particulates from the carrier fluid.”

Applicant respectfully traverses the rejections. As stated above, *Parker* does not teach, show, or suggest an apparatus for separating particulates from a carrier fluid comprising an upper section with a first cross-sectional area and a lower section with a second cross-sectional area as required in base Claims 1, 21, 23, 25 and those dependent therefrom. Furthermore, *Parker* does not teach, show, or suggest a vessel having a cyclone section and a stripping section where the stripping section has a cross sectional area less than a cross-sectional area of the cyclone section as required in base Claims 1, 21, 23 and those dependent therefrom in addition to dependent claim 26.

The Applicant believes that *Simpson* and *Dewitz* do not remedy the deficiencies of *Parker*. *Simpson* discloses that “it is important that central cylindrical portion 314 have a cylinder diameter 342 larger than inlet diameter 340 which is basically the same diameter as cyclone outlet 103.” See, *Simpson* at col. 6, ll. 12-16. *Simpson* also discloses that the “[d]iffuser housing 301 includes an upper tapered portion 312, a central cylindrical portion 314, a lower tapered portion 314 [sic], wherein diffuser inlet 302 has a [sic] inlet diameter 340 which is the same as the cyclone outlet diameter and wherein central cylindrical portion 314 has a cylindrical

diameter 342.” *See, Simpson* at col. 4, ll. 29-34. *Simpson* never discusses the relationship between the cross sectional area of a cyclone section and a diffuser section. *Dewitz* discloses a “substantially can-shaped open-ended cyclone 6 having a substantially closed end 8, an open end 10, a wall 12 connecting a perimeter of the closed end and the open end, an inside surface 110, at least one inlet 14 for receiving the suspension of particles and vapors, and an outlet 16 positioned in the substantially closed end, which is contained in a disengager shell 18.” *See, Dewitz* at col. 4, ll. 21-27. Furthermore, *Dewitz* discloses that the “open end 10 of the open-ended cyclone 6 projects downwardly into the zone for containing fluidized particles 22.” *See, Dewitz* at col. 7, ll. 38-40. In fact, there is no mention in neither *Simpson* nor *Dewitz* discussing a stripping section having a cross sectional area less than a cross-sectional area of a cyclone section.

Therefore, a combination of *Parker*, *Simpson*, and *Dewitz* does not teach, show, or suggest all claim limitations of claims 1, 21, 23 and those dependent therefrom in addition to dependent claim 26. Withdrawal of the rejection and allowance of the claims is respectfully requested.

Applicant notes that the Examiner admits that *Parker* does not disclose a particulate stripping unit having a stripping section with a cross sectional area less than a cross sectional area of the cyclone section. *See, Final Office Action*, dated August 23, 2007 at page 7, first full paragraph. However, the Office Action states, “it is known to those in the art that changes in diameter of a conduit through which fluid flows will induce a vortex to form therein.” The Examiner also states:

the person having ordinary skill in the art . . . would have been motivated to modify the unit of *Parker* by increasing the cross sectional area of the cyclone section relative to the stripping section . . . in order to ensure rapid development and sustained strength of an interior vortex necessary to separate particulates from the carrier fluid.

Applicant respectfully disagrees and submits that the Examiner's assertions are nothing more than a legal conclusion based on impermissible hindsight. Applicant asks the Examiner to

provide factual support for the record that such alleged phenomena occur. Insofar as the record shows, if it is true that changes in diameter of a conduit through which fluid flows will induce a vortex to form therein, it has been gleaned from the Applicant's own specification. Mere conclusory statements and hindsight cannot be used to support an obviousness rejection under 35 U.S.C. § 103. Therefore, withdrawal of the rejection and allowance of the claims is respectfully requested.

Regarding the apertures required in Claims 1, 21, 23 and those dependent therefrom and dependent Claims 26 and 27, the Examiner asserts that *Simpson* discloses a material classifier that uses "a plurality of openings disposed through a lower portion of the stripping section." Applicant respectfully disagrees. *Simpson* discloses an "air diffuser 300" in which "particles of all sizes meet with diffuser air 304 which is allowed to enter through air slots 305 which are defined around the *entire cylinder outer periphery 350 of central cylindrical portion 314 of diffuser housing 301.*" See, *Simpson* at col. 5, ll. 36-40 (emphasis added). Furthermore, *Simpson* discloses that "one is able to enhance and encourage the up draft interior vortex 702 by *placing the air slots 305 around cylinder outer periphery 350* in an angled relationship having an angle theta 344 as shown in Fig. 5." See, *Simpson* at col. 6, ll.1-4 (emphasis added). The air slots 305 disclosed by *Simpson* are disposed around the outer cylindrical wall of the diffuser housing 301. Therefore, *Simpson*, alone or in combination with *Parker*, does not teach, show, or suggest a plurality of apertures formed through a lower portion of the stripping zone as required in every claim. Withdrawal of the rejection and allowance of the claims is respectfully requested.

Regarding Claims 23 and 24, the Office Action states, "that following the steps of Applicant's 'method of retrofitting an existing cyclone to a self-stripping cyclone' as defined by claims 23 and 24 would result in the unitary design of Parker's cyclone separator/stripper as modified in view of Simpson." The Office Action, with reference to *Dewitz*, further states, "it is generally known in the art to retrofit existing cyclones, e.g. in order to make use of existing process equipment and to save on new equipment costs. . . ."

Applicant respectfully disagrees and traverses the rejection. *Parker* and *Simpson* have been discussed and distinguished above. *Dewitz* adds nothing to the deficiencies of *Parker* and *Simpson*. As stated above, *Dewitz* discloses a "substantially can-shaped open-ended cyclone 6

having a substantially closed end 8, an open end 10, a wall 12 connecting a perimeter of the closed end and the open end, an inside surface 110, at least one inlet 14 for receiving the suspension of particles and vapors, and an outlet 16 positioned in the substantially closed end is contained in a disengager shell 18.” *See, Dewitz* at col. 4, ll. 21-27. Furthermore, *Dewitz* discloses that the “open end 10 of the open-ended cyclone 6 projects downwardly into the zone for containing fluidized particles 22.” *See, Dewitz* at col. 7, ll. 38-40. Therefore, a combination of *Parker, Simpson, and Dewitz* does not teach, show, or suggest a stripping section having a cross-sectional area less than a cross-sectional area of the existing cyclone as required in base claim 23 and those dependent therefrom. Furthermore, a combination of *Parker, Simpson, and Dewitz* does not teach, show, or suggest a plurality of apertures formed through a lower portion of the stripping zone as required in claim 23 and those dependent therefrom. Withdrawal of the rejection and allowance of the claims is respectfully requested.

The Office Action rejected Claim 4 under 35 U.S.C. § 103(a) as being unpatentable over *Parker* in view of *Fandel* (U.S. Patent No. 5,843,377; hereafter “*Fandel*”). Alternatively, claim 4 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over *Parker* in view of *Simpson* and *Fandel*.

Applicant respectfully traverses the rejections. Neither *Parker* nor *Simpson*, alone or in combination, teach, show, or suggest all the limitations of Claim 1 from which Claim 4 depends. *Fandel* adds nothing to the deficiencies of *Parker* and *Simpson*. Therefore, Claim 4 is allowable for at least the same reasons as Claim 1. Withdrawal of the rejection and allowance of Claim 4 is respectfully requested.

The Office Action rejected Claims 30-32 under 35 U.S.C. § 103(a) as being unpatentable over *Parker*. Applicant respectfully traverses this rejection for reasons stated above. Since Claims 30 and 32 include all the limitations of base Claim 29, Applicant believes that Claims 30-32 are allowable for at least the same reasons. Withdrawal of the rejection and allowance of the claims is respectfully requested.

Having addressed all issues set out in the Office Action, Applicant respectfully submits that the pending claims are now in condition for allowance. Applicant invites the Examiner to telephone the undersigned attorney if there are any issues outstanding which have not been addressed to the Examiner's satisfaction.

Since Applicant is filing this Response within two months of the mailing date of the Final Office Action, Applicant respectfully requests that the Examiner send the Applicant an Advisory Action regarding this response.

If any fees are due with the noted amendments, the Director is hereby authorized to charge any fees associated with this filing to Deposit Account Number 11-0400 in the name of Kellogg Brown & Root LLC.

Applicant thanks the Examiner for his time on the matter.

Respectfully submitted,

Date: _____

10/17/07



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Enclosures: Replacement Sheet page 1/11 and an annotated marked-up version

Annotated Marked-Up Drawing

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